comprise six base pairs, respectively, where the molecule is double stranded, in which case first molecule 110 has an adenine (A), guanine (G), and a thymine (T) base in sequence. Cytosine (C) may also be one of the bases of a DNA molecule. Thus, where first molecule 110 is a single stranded molecule, it may have N number of residues where or subunits where N may range from one to infinity, or may have 2N number of residues or subunits, where first molecule 110 is double stranded. Where first molecule 110 is an RNA oligonucleotide, it may include the base uracil (U) instead of thymine. When first molecule 110 is sequenced by sequencing machine 112, sequencing machine 112 provides an output sequence (SEQUENCE A OUTPUT) 114 that is representative of the sequence of the residues, or subunits, of first molecule 110. Sequence output 114 of sequencing machine 112 is provided as an input to an electronic hybridization machine (ELECTRONIC HYBRIDIZATION MACHINE) 116 which is capable of reading and interpreting sequence output 114. In a likewise manner, a second molecule (MOLECULE B) 118 is sequenced by sequencing machine (SEQUENCING MACHINE) 120, which provides a sequence output (SEQUENCE OUTPUT) 122 that is representative of the sequence of second molecule 118. Second molecule 118 may be an oligonucleotide similar to first molecule 110 (e.g., DNA or RNA). Sequence output 122 of sequencing machine 120 is provided to electronic hybridization machine 116 so that an electronic hybridization reaction between first molecule 110 and second molecule 118 is performed electronically rather than chemically. The electronic hybridization reaction, generally referred to as a sequence analysis, performed by electronic hybridization machine 116 is in one embodiment of the invention representative of an actual chemical reaction between the physical forms of first molecule110 and second molecule 118. In a physical world chemical hybridization reaction between first molecule 110 and second molecule 118, the extent to which the two molecules bind to one another is typically indicated with a reporter molecule such as a radioactive of fluorescent reporter molecule. The greater the similarity between the two molecules, the greater the amount of binding between the two chemicals, resulting in a fluorescent or radioactive intensity of a signal provided by the reporter molecule. The intensity of the reporter molecule is usually observed by the human eye, or by a detector sensitive to the fluorescence or radioactivity of the reporter molecule. With the present invention, such a hybridization reaction is

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